

**§ 98.470**

**40 CFR Ch. I (7–1–11 Edition)**

**Subpart UU—Injection of Carbon Dioxide**

SOURCE: 75 FR 75086, Dec. 1, 2010, unless otherwise noted.

**§ 98.470 Definition of the source category.**

(a) The injection of carbon dioxide (CO<sub>2</sub>) source category comprises any well or group of wells that inject a CO<sub>2</sub> stream into the subsurface.

(b) If you report under subpart RR of this part for a well or group of wells, you are not required to report under this subpart for that well or group of wells.

(c) A facility that is subject to this part only because it is subject to subpart UU of this part is not required to report emissions under subpart C of this part or any other subpart listed in § 98.2(a)(1) or (a)(2).

**§ 98.471 Reporting threshold.**

(a) You must report under this subpart if your facility injects any amount of CO<sub>2</sub> into the subsurface.

(b) For purposes of this subpart, any reference to CO<sub>2</sub> emissions in § 98.2(i) shall mean CO<sub>2</sub> received.

**§ 98.472 GHGs to report.**

You must report the mass of CO<sub>2</sub> received.

**§ 98.473 Calculating CO<sub>2</sub> received.**

(a) You must calculate and report the annual mass of CO<sub>2</sub> received by pipeline using the procedures in paragraphs (a)(1) or (a)(2) of this section and the procedures in paragraph (a)(3) of this section, if applicable.

(1) For a mass flow meter, you must calculate the total annual mass of CO<sub>2</sub> in a CO<sub>2</sub> stream received in metric tons by multiplying the mass flow by the CO<sub>2</sub> concentration in the flow, according to Equation UU-1 of this section. You must collect these data quarterly. Mass flow and concentration data measurements must be made in accordance with § 98.474.

$$\text{CO}_{2\text{T},r} = \sum_{p=1}^4 (Q_{r,p} - S_{r,p}) * C_{\text{CO}_{2,p,r}} \quad (\text{Eq. UU-1})$$

Where:

CO<sub>2T,r</sub> = Net annual mass of CO<sub>2</sub> received through flow meter r (metric tons).

Q<sub>r,p</sub> = Quarterly mass flow through a receiving flow meter r in quarter p (metric tons).

S<sub>r,p</sub> = Quarterly mass flow through a receiving flow meter r that is redelivered to another facility without being injected into your well in quarter p (metric tons).

C<sub>CO<sub>2</sub>,p,r</sub> = Quarterly CO<sub>2</sub> concentration measurement in flow for flow meter r in quarter p (wt. percent CO<sub>2</sub>, expressed as a decimal fraction).

p = Quarter of the year.

r = Receiving flow meter.

(2) For a volumetric flow meter, you must calculate the total annual mass of CO<sub>2</sub> in a CO<sub>2</sub> stream received in metric tons by multiplying the volumetric flow at standard conditions by the CO<sub>2</sub> concentration in the flow and the density of CO<sub>2</sub> at standard conditions, according to Equation UU-2 of this section. You must collect these data quarterly. Volumetric flow and concentration data measurements must be made in accordance with § 98.474.

$$\text{CO}_{2\text{T},r} = \sum_{p=1}^4 (Q_{r,p} - S_{r,p}) * D * C_{\text{CO}_{2,p,r}} \quad (\text{Eq. UU-2})$$

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§ 98.474

Where:

$CO_{2T,r}$  = Net annual mass of  $CO_2$  received through flow meter  $r$  (metric tons).

$Q_{r,p}$  = Quarterly volumetric flow through a receiving flow meter  $r$  in quarter  $p$  at standard conditions (standard cubic meters).

$S_{r,p}$  = Quarterly volumetric flow through a receiving flow meter  $r$  that is redelivered to another facility without being injected into your well in quarter  $p$  (standard cubic meters).

$D$  = Density of  $CO_2$  at standard conditions (metric tons per standard cubic meter): 0.0018704.

$C_{CO_2,p,r}$  = Quarterly  $CO_2$  concentration measurement in flow for flow meter  $r$  in quarter  $p$  (vol. percent  $CO_2$ , expressed as a decimal fraction).

$p$  = Quarter of the year.

$r$  = Receiving flow meter.

(3) If you receive  $CO_2$  through more than one flow meter, you must sum the mass of all  $CO_2$  received in accordance with the procedure specified in Equation UU-3 of this section.

$$CO_2 = \sum_{r=1}^R CO_{2T,r} \quad (\text{Eq. UU-3})$$

Where:

$CO_2$  = Total net annual mass of  $CO_2$  received (metric tons).

$CO_{2T,r}$  = Net annual mass of  $CO_2$  received (metric tons) as calculated in Equation UU-1 or UU-2 for flow meter  $r$ .

$r$  = Receiving flow meter.

(b) You must calculate and report the annual mass of  $CO_2$  received in containers using the procedures specified in either paragraph (b)(1) or (b)(2) of this section.

(1) If you are measuring the mass of contents in a container under the provisions of § 98.474(a)(2)(i), you must calculate the  $CO_2$  received in containers using Equation UU-1 of this section.

Where:

$CO_{2T,r}$  = Annual mass of  $CO_2$  received in containers  $r$  (metric tons).

$C_{CO_2,p,r}$  = Quarterly  $CO_2$  concentration measurement of contents in containers  $r$  in quarter  $p$  (wt. percent  $CO_2$ , expressed as a decimal fraction).

$Q_{r,p}$  = Quarterly mass of contents in containers  $r$  in quarter  $p$  (metric tons).

$S_{r,p}$  = Quarterly mass of contents in containers  $r$  that is redelivered to another facility without being injected into your well in quarter  $p$  (standard cubic meters).

$p$  = Quarter of the year.

$r$  = Containers.

(2) If you are measuring the volume of contents in a container under the provisions of § 98.474(a)(2)(ii), you must calculate the  $CO_2$  received in containers using Equation UU-2 of this section.

Where:

$CO_{2T,r}$  = Annual mass of  $CO_2$  received in containers  $r$  (metric tons).

$C_{CO_2,p,r}$  = Quarterly  $CO_2$  concentration measurement of contents in containers  $r$  in quarter  $p$  (vol. percent  $CO_2$ , expressed as a decimal fraction).

$S_{r,p}$  = Quarterly mass of contents in containers  $r$  that is redelivered to another facility without being injected into your well in quarter  $p$  (standard cubic meters).

$Q_{r,p}$  = Quarterly volume of contents in containers  $r$  in quarter  $p$  (standard cubic meters).

$D$  = Density of the  $CO_2$  received in containers at standard conditions (metric tons per standard cubic meter): 0.0018682.

$p$  = Quarter of the year.

$r$  = Containers.

### § 98.474 Monitoring and QA/QC requirements.

(a) *CO<sub>2</sub> received.*

(1) You must determine the quarterly flow rate of  $CO_2$  received by pipeline by following the most appropriate of the following procedures:

(i) You may measure flow rate at the receiving custody transfer meter prior to any subsequent processing operations at the facility and collect the flow rate quarterly.

(ii) If you took ownership of the  $CO_2$  in a commercial transaction, you may use the quarterly flow rate data from the sales contract if it is a one-time transaction or from invoices or manifests if it is an ongoing commercial transaction with discrete shipments.